The total dose in Pd^{103} implants of the prostate is delivered over much shorter time (Tave=24.4d) than in I^{125} implants (Tave = 85.8d) and despite a lower total dose have the potential of producing greater acute normal tissue effects. These may be exacerbated by a higher local dose due to relatively lower penetrating photons of Pd^{103} (21 keV) compared to I^{125} (28 keV). Short term edema may, however, produce a lower dose from Pd^{103} because of its shorter average life.

46 patients who received Pd^{103} (n=14) and I^{125} (n=32) implants(based on Gleason grade) were scored for urinary retention (UR) against seed type, treatment volume(TV), # of seeds, # of needles, stage, prescription dose (PD) DVHs, and double dose (DD) DVHs. Treatment volumes determined from a preimplant ultrasound were superimposed on CT scans ("Seattle technique") taken within 1day and at 1 month post implant. DVHs were used to determine minimum volumes receiving 1X and 2X prescription dose. Both PD and DD minimum volumes increased for second CT due to reduced mean interseed distances, but urinary retention did not correlate with either.

Our data show UR was correlated only with prostatic volume and isotope (no correlation between volume and isotope). Our conclusion is that there is an approximately 2X greater incidence of UR with Pd^{103} than with I^{125}.